

Scientific Event:

Appearance of Rodents and Small Mammals

Time Frame: ~60 million years ago

The scientific descriptions on these pages are derived from AI investigations using ChatGPT and Gemini 3 asking about the appearance of the first small mammals on earth like rodents, mice, rats, and beavers and the subsequent evolution of these animals. The AI output has been revised appropriately for improved accuracy, ease of comprehension, and relevance to this study of Genesis 1.

Background: The Origins of the Class *Mammalia* (Mammals)

- In the Linnaean taxonomic hierarchy, the rodents are of the Kingdom Animalia (animals), Phylum Chordata (animals with a spinal cord), Class Mammalia (mammals), and the Order **Rodentia**. So, we take a look first at the origin of class of mammals.

Modern large mammals have their deepest roots in early *mammaliaforms*—small, mostly nocturnal, insectivorous creatures that evolved from **synapsid** ancestors. Key stages include the following.

1. Synapsids → Cynodonts

- a. **Synapsids** (the “mammal-like reptiles”) emerged over 300 Ma ago
- b. **Advanced cynodonts**, appearing ~240 Ma, possessed many mammalian traits: differentiated teeth, warm-blooded physiology, whisker-bearing snouts, and early forms of the mammalian jaw/ear structure

2. True Mammals

- a. By ~200 Ma, the first true mammals (*Morganucodon*, *Hadrocodium*) existed
- b. They were small, shrew-like generalists, not large predators or herbivores

3. **No large mammals** existed at this stage; ecological niches for large land predators were dominated by dinosaurs.

4. Everything changed **66 million years ago** when an asteroid hit Earth. With the dinosaurs gone, these small survivors exploded into the diverse forms we see today.

Development of the Rodentia Order and Suborders

After the extinction event of 66 Ma, the earliest widely accepted rodent fossil is the [Paramys](#).

1. Paramys

- a. **Time Frame:** ~56 to 50 Ma
- b. Extinct genus of rodents from North America, Europe, Asia
- c. Probably lived in trees

2. Early rodents

- a. Squirrel-like or mouse-like appearance
- b. Tree-dwelling or ground-dwelling
- c. Fed on seeds, nuts, plant material
- d. Incisor structure specialized for gnawing
- e. Molecular phylogenetics suggests origination in Asia

3. Became one of the most successful mammal groups. It greatly diversified

- a. Squirrels (Sciuridae family)
 - i. Appeared ~36 to 34 Ma
 - ii. Evidence: Fossils such as *Douglassciurus*
- b. Beavers (Castoridae family)
 - i. Oldest beaver relative: *Minocastor*, ~32 Ma
 - ii. Evidence: Tail vertebrae, limb morphology, and teeth revealing bark-eating habits
- c. Mice and Rats (Muridae family)
 - i. Origin: ~18 to 16 Ma (early–middle Miocene) in Asia
 - ii. Rapid global spread
 - iii. Evidence: Fossil teeth with characteristic murid cusp patterns; molecular phylogenies
- d. Porcupines, Capybaras, Guinea Pigs (Caviomorpha family, South America)
 - i. Arrived via rafting from Africa ~41 to 35 Ma
 - ii. Evidence: South American fossil record, molecular clocks, biogeographic reconstruction
- e. Reasons for rodent's success
 - i. High reproductive rates
 - ii. Gnawing adaptation enabling exploitation of new food sources
 - iii. Body-size flexibility
 - iv. Ability to occupy diverse environments (arboreal, burrowing, aquatic)

Description in Genesis 1 of This Event

And God said, “Let the land produce living creatures according to their kinds: the livestock, the creatures that move along the ground, and the wild animals, each according to its kind.” And it was so. God made the wild animals according to their kinds, the livestock according to their kinds, and all the creatures that move along the ground according to their kinds. And God saw that it was good.
Genesis 1:24-25 (NIV)

Passages left highlighted are those most relevant to the scientific event of interest

The approach that this supplement pack takes in making associations between Genesis 1 events and scientific events is to use the earliest scientific event that makes sense according to the Hebrew words used in Genesis 1 (i.e., the use of good hermeneutics) while also considering where the event would likely be placed on a timelines that is consistent with the sequence of events described in Genesis 1.

In this case, the livestock ancestors appeared somewhere around 55.4 to 46.2 million years ago. Therefore, we use 55.4 Ma for the point on the timeline for this event from Genesis 1:24-25.

We note that the times used for the different mammals do not line up perfectly with the order given in Genesis 1:24-25 using the assumption of taking the earliest scientific event. For example, the Genesis text mentions livestock, then rodents, then wild animals. But using our approach, the associated time frames would be ~55.4 Ma, ~60 Ma, and then ~62 Ma. This will be an area for further investigation, but it should be pointed out that these time frames are all very close to each other from the perspective of the overall history of the Earth. Plans are to cover this matter more fully in future iterations of this supplement pack.